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## CAN DESIGN THINKING MITIGATE CRITICAL STRATEGY IMPLEMENTATION RISKS?

L. C. Lund Strøm, P. L. Willumsen, J. Oehmen and J. Heck

### Abstract

Failed strategy implementations are a key business risk, and we explore how applying design thinking can mitigate key risks in strategy implementation. Based on a literature review and exploratory interviews, we identify a set of key strategy implementation risks, and map these risks against the key principles of the design thinking methodology. We discuss the usage of design thinking capabilities to tackle key strategy implementation risks and call for a situation-specific adaptation of strategy implementation. The paper concludes with an outlook on future research activities.

*Keywords: design thinking, strategy implementation, strategy design, risk management, design methods*

### 1. Introduction

Formulating a clear and inspiring strategy is a difficult task – and making it work throughout the organization is even more difficult (Hrebiniak, 2006). Recently, there has been a significant increase in attention to improving strategy implementation (Brightline, 2017). A recent Economist Intelligence Unit Study shows that 61% of organizations struggle with bridging the gap between strategy formulation and implementation. Moreover, 53% of respondents highlighted the importance of a successful implementation and argued that ineffective strategic initiatives have a big impact on the organization's performance and competitive advantages (The Economist Intelligence Unit, 2017). What the concept of strategy implementation entails differs between scholars and the word itself implies a particular traditionalist perspective on strategy work. However, many agree that strategy implementation is not a simple set of actions, but is a complex process with many factors, such as resource allocation, human capital, communications and responsibility delegations, influencing its overall success (Hitt et al., 2017). The world is changing rapidly and there is a high degree of uncertainty for organizations on how to run their businesses, resulting in significant risks (this paper follows the common ISO31000 definition of risk as the effect of uncertainties on objectives (ISO, 2018). Dealing with uncertainty and the resulting risks is central because execution often does not match 'plans' (Mintzberg and Waters, 1985; Hrebiniak, 2013; Andersen, 2015). Approaches to implementing strategy should be able to take this into account. The empirical findings presented in this paper (see Section 2.3) support this argument. This paper explores the use of Design Thinking to support addressing these risks to successful strategy implementation. Design Thinking approaches are commonly applied to design of business processes (Liedtka and Ogilvie, 2011) due to their iterative nature and risk-reduction capabilities. However, literature is lacking a specific discussion of the possibility of applying Design Thinking to strategy work, especially implementation-related processes. This paper contributes to closing this research gap by examining the key risks to strategy implementation and exploring how the application of Design Thinking could improve strategy implementation, especially by mitigating its inherent risks. The

remainder of the paper is structured as follows. Section 2 review key strategy implementation risks in both theory and practice. It is based on a literature review and in-depth exploratory interviews. Section 3 briefly reviews design thinking and identify key concepts in design. Section 4 discuss how the design thinking concepts can mitigate the previously discussed key strategy implementation risks, and maps key risks against the key concepts of design thinking. The paper concludes with a brief discussion of the findings and a conclusion in Section 5.

## **2. Strategy implementation risks in theory and practice**

### **2.1. Brief literature discussion of strategy work**

Strategy implementation is a broad concept. There exist a multitude of perspectives and models focusing on different aspects of strategy work, their definition and description. Although heavily criticized in the strategy literature as an artificial division of two complementary activities, strategy work is regularly conceptualized, particularly in the application- and teaching-oriented literature, into strategy design and strategy implementation (Grant, 2010; Huber, 2011; Sadowska, 2014). The design process and implementation process are presented as a sequential process (Grant, 2010; Huber, 2011; Sadowska, 2014). In practice strategy work, especially implementation related activities, encounter problems when faced with 'the real world'. Mintzberg and Waters (1985) characterized strategy work as having a fundamental tension between strategic intent and emergent strategy. A central aspect of strategy work is problem solving as tensions between strategic intent and emergent strategy are addressed. When strategies are executed they often face problems in relation to a number of aspects such as human capital allocation and resource allocation (Noble, 1999; Tripsas and Gavetti, 2010; Hitt et al., 2017), placing problem solving as fundamental to strategy implementation and execution. Strategy implementation is not just a simple sequence of actions, but a complex process with many different influencing factors (Wernham, 1985; Li et al., 2008; Hitt et al., 2017). There is an argument in literature that there is an over-emphasis on strategy development over strategy implementation, compounded by the fact that strategy implementation can be seen as even more challenging and complex (Hrebiniak, 2006; Hrebiniak, 2013). Even though there is a body of work providing practical guidance and frameworks regarding strategy implementation (Hrebiniak, 2013; Siddique and Shadbolt, 2016; Brightline, 2017; Hitt et al., 2017; Hourani, 2017), there is little systematic research on strategy implementation (Hitt et al., 2017). The work that exists differs in focus, process, elements, how the elements connect to each other and on how they define and name the concept of strategy implementation, e.g. execution, making, strategy as practice, deployment or actualization of goals (Li et al., 2008; Siddique and Shadbolt, 2016; Hourani, 2017). What the concept of strategy implementation entails differs between scholars and the word itself implies a particular traditionalist perspective on strategy work. Harrington (2006) describes strategy implementation as the process of implementing strategies, programs, initiatives and action plans that allows a company to take advantages of the opportunities available in the market. Noble (1999) describes strategy implementation as the communication, interpretation, adaption and enactment of strategic plans and initiatives, and as a process of continuous resource allocation. Strategy implementation is also described as designing appropriate organizational structure and control systems in order to take the strategy into action (Hitt et al., 2017). There are many important aspects of strategy implementation such as resource allocation, human capital, communication, control systems, and responsibility and roles delegation (Hrebiniak, 2013; Hitt et al., 2017; Hourani, 2017). Implementing a new strategy often requires getting people to change their behavior, perform new actions or perform existing actions in a new way (Hrebiniak, 2013), thus placing human factors as one of the central and crucial aspects of strategy implementation (Hrebiniak, 2006; Hrebiniak, 2013; Siddique and Shadbolt, 2016; Hitt et al., 2017; Hourani, 2017). To better align with human and cultural factors, there is a need in strategy implementation for interactivity, adaptiveness and realizing the benefit of understanding the human element (Mintzberg and Waters, 1985; Andersen, 2004; Whittington, 2007; Andersen, 2015). Multiple models identify interpersonal processes, engagement and participation as part of strategy implementation but also a bottle neck, however then exclude synthesizing and conceptualizing the strategy at the operational stage. (Li et al., 2008; Siddique and Shadbolt, 2016; Hourani, 2017). Excluding the 'lower' level of employees from the conceptualization may present a paradox, as top

down approaches can drive a loss of participation and meaning (Wenger, 1998). This is compounded by the fact that one model of strategies argues that they can be understood as a ‘bottom up’ phenomenon where the decisions and priorities of managers ‘create’ the actual company strategy (Bower and Gilbert, 2007; Burgelman and Grove, 2007). Strategy implementation models depict an interdependency of components (Keenan et al., 2013; Siddique and Shadbolt, 2016; Hourani, 2017), but not how these components interact dynamically during the execution process. There is a disconnect in the ‘meta-level’ depictions of strategy implementation models, and the practical needs of the practitioners (Okumus, 2003; Li et al., 2008). In literature, we find generic implementation challenges, but less about tailoring the implementation to a particular strategy (Hrebiniak, 2013; Hitt et al., 2017). The literature on strategy implementation currently misses, to our best knowledge, a thorough framework of implementation risks (Noy and Ellis, 2003; Wickham, 2008; Ilevbare et al., 2014). The following sub-sections elaborate the key risks in strategy implementation from a theoretical point of view and incorporates the perspective of practitioners with a series of explorative interviews.

## **2.2. Critical risks in strategy implementation - literature perspective**

In the context of this paper, risks are understood according to ISO31000 as the effect of uncertainties on objectives (ISO, 2018). The objective in our case is to effectively and efficiently implement a chosen strategy. There are several uncertainties which can impact this objective that emerged from our literature review. We limited the number of primary sources in order to emphasize key articles addressing a range of strategy implementation risks. Thus, we expect the list to be a representation of typical strategy implementation risks discussed in the strategy literature, but not an exhaustive list or taxonomy.

### *2.2.1. Uncertainty 1: Alignment of strategy implementation process and operational requirements*

A major challenge of strategy implementation is competing models and reference frameworks. Senior executives must choose and customize a framework that is "fit for purpose" for their particular strategy implementation task. Failure to do so creates a significant risk to successful strategy implementation. Specific strategies such as acquisition or innovation strategies need a tailored approach and have contextual characteristics (Hitt et al., 2017). There is uncertainty in whether the management has the ability to choose a relevant process model and customize it to their situation. Strategies need to be adapted in multiple dimensions (Andersen, 2015), and since strategies may display emergent characteristics at the operational levels that are very different from the intended strategy (Mintzberg and Waters, 1985), not realizing the need for customization and adaptation presents a risk.

### *2.2.2. Uncertainty 2: Alignment / interaction between strategy design and implementation processes*

Separating strategy formulation and execution pose as a risk for strategy implementation, “and almost guarantee failure” (Martin, 2010). Strategy formulation and implementation are interdependent - the planning affects the execution, and the execution can lead to changes in the strategy (Hrebiniak, 2006, 2013). There are choices to be made during the implementation which could not be pre-defined in the formulation phase, and almost no strategy can be so tightly specified that people executing it, don’t have to make “strategic” choices themselves (Martin, 2017). Many obstacles arise during execution, and part of strategy work is the process of finding solutions to difficult or complex issues to overcome obstacles for the strategy to be executed (Hrebiniak, 2013). One could therefore argue that a part of strategy implementation about solving problems, such as overcoming obstacles (Mintzberg and Waters, 1985; Hrebiniak, 2013; Hitt et al., 2017). Therefore, there may be difference between the formulation of the strategy and what is realized in practice (Mintzberg and Waters, 1985), and the intended strategy may not be the one that emerges during implementation. Some key uncertainties cannot be identified upfront (Ilevbare et al., 2014), but will first become clear during the strategy execution. Strategy formulation and implementation are equally important, and the CEO needs to give equally attention to both (Brightline, 2017). To achieve strategic success strategies must entail a simultaneous perspective on the formulation, planning and execution (Hrebiniak, 2006, 2013). By separating the two, you risk ending up with a strategy that is not fit for the actual reality or adaptive to the changing environment. Thus, there lies an uncertainty in the ability to integrate the formulated strategy into a high-quality

implantation plan, as well as the ability to respond to changes or situations that arises during execution. If this uncertainty is not handled properly, it can create a risk for a successful strategy implementation.

#### *2.2.3. Uncertainty 3: Degree of C-level responsibility for strategy implementation*

Some CEO's believe that strategy design is their job, and strategy implementation is someone else's job (Hrebiniak, 2006; Martin, 2010). Others regard it as an important part of the CEO's job to ensure that the organization has the necessary capabilities for strategy implementation (Brightline, 2017). It is the responsibility of the CEO to oversee the strategy implementation, and to ensure that the goals and results are being delivered (Brightline, 2017; Martin, 2017). The number-one reason for the success of strategy implementation is leadership buy-in and support (The Economist Intelligence Unit, 2013), but only half of the respondents believe that strategy implementation gets the necessary attention. Therefore, there lies an uncertainty in the ability to acknowledge the necessity of taking responsibility as well as the ability to actually offer the necessary leadership support. Failing to take responsibility for delivering the strategy creates a risk for the success of strategy implementation since it can lead to a lack of engagement, trust and motivation to do what is necessary to implement the strategy.

#### *2.2.4. Uncertainty 4: Degree and quality of involvement, engagement and mobilization of key stakeholders in strategy implementation*

Li et al. (2008) argue that human factors are central to strategy implementation. Implementing a strategy often requires getting other people to change their behaviour, perform new actions or perform existing actions in a new way (Hrebiniak, 2006, 2013) and some argue that this requires a "culture change" (Hrebiniak, 2006). One risk is the inability to manage change and to overcome resistance to change (Hrebiniak, 2006, 2013). Strategy implementation might be more of a human behaviour challenge than a strategy challenge (Bregman, 2017), and Connolly (2006) points out that successful CEOs ensure that their organization's culture is an enabler and supporter for strategy execution rather than hindrance. Overlooking the culture aspect and not getting the right people involved, motivated and mobilized poses as a key risk in strategy implementation (Martin, 2010; Brightline, 2017). Several emphasized the importance of clear communication to engage the right people (Li et al., 2008). If the strategy is not clearly communicated down and across different organizational functions, and if the strategic objectives are not clearly linked to the employees' day-to-day objectives, it can pose as a risk for strategy implementation (Hrebiniak, 2006, 2013). However, few authors have studied the impact of the strategy implementation on the lower management and 'non-management' (Li et al., 2008) even though a low level of shared knowledge at this level represents a high risk of failure (Noble, 1999). The risk of unclear communication comprises the risks of poor knowledge sharing and unclear roles and responsibilities (Hrebiniak, 2006, 2013), which may hinder strategy implementation. This suggests that if the culture in organizations is not handled properly, it can be a key risk for the success of strategy implementation. Therefore, the ability to involve, engage, motivate and mobilize the right people is crucial since a culture change can only happen by getting the relevant stakeholders on board.

#### *2.2.5. Uncertainty 5: Quality of strategy implementation as an adaptive and iterative learning process*

Strategy implementation is a complex process, with many factors influencing it (Wernham, 1985; Li et al., 2008; Hitt et al., 2017) and it is a process that takes longer than the actual strategy formulation (Hrebiniak, 2006, 2013). In today's business environment, strategy planning cycles must be more rapid, dynamic and agile than in the past (Brightline, 2017). A recent study of senior executives (The Economist Intelligence Unit, 2013, 2017) argues that strategy implementation is a continuous, iterative process and not a top-down execution process of a few months duration (Jamrog et al., 2016). It is an iterative process of implementing different actions plans, policies and programs, and if it not treated as such it creates a risk to the success of the implementation (Harrington, 2006; Li et al., 2008). Strategy implementation is not just about executing a predefined set of actions, it is about executing the strategy according to the reality, responding to unknown situations, challenges and potentials that will arise. One cannot know the precise outcome and before the actually process takes place – and therefore a strategy implementation process must be flexible enough to handle whatever arises (Mintzberg, 1985; Bower and Gilbert, 2007; Burgelman and Groove, 2007; Andersen, 2015,). Therefore, there is uncertainty in

the ability to adapt and improve the strategy formulation and implementation plan throughout its execution. All of this points out the risk in considering strategy implementation as a linear step-by-step process, as opposed to an iterative process, which should be revisited continuously during the implementation period.

### 2.3. Validation of strategy implementation risk by practitioners

In order to explore the practitioners' point of view on strategy implementation risks, we conducted a series of 19 semi-structured interviews. Initially, a sample of 7 strategy implementation professionals from SME were chosen for an exploratory study. Based on this and the literature review a sense-making model was build. This formed the basis of a series of 12 semi-structured problem-centric interviews (Witzel, 2000). The interviewees were selected based on 3 groups: 1) C-level executives with strategy responsibility and experience, 2) Managers with strategy responsibility, or 3) Management or strategy consultants working for small, medium or large enterprises supporting them in implementing strategies. All interviewees have been anonymized for this paper. We utilized the concept of Silent Design by Gorb and Dumas (1987) to understand and analyze “design by people who are not designers and are not aware that they are participating in design activity”. Data from the interviews was transcribed and coded using the sense-making model, journey mapping or 'life-cycle' perspectives and key themes identified. The interviews allow for a preliminary validation and complementation of the literature-based key risks in strategy implementation. The following sections provide the most relevant risks in strategy implementation from the practitioners' point of view.

**Table 1. List of interviewees**

Interviewees	Title	Company type	Duration of interview
<i>Exploratory pre-study</i>			
Interviewee no. 1	Strategy associate	Large enterprise	Approx. 1 hour
Interviewee no. 2	CEO strategy advisor	Small-medium enterprise	Approx. 1 hour
Interviewee no. 3	Corporate strategy manager	Large enterprise	Approx. 1 hour
Interviewee no. 4	Strategy consultant	Small-medium enterprise	Approx. 0,5 hours
Interviewee no. 5	Partner and senior consultant	Small-medium enterprise	Approx. 0,5 hours
Interviewee no. 6	CEO and founder	Small-medium enterprise	Approx. 1 hour
Interviewee no. 7	Professor in Strategy	University	Approx. 1 hour
<i>Semi-structured study following a sense-making model</i>			
Interviewee no. 8	Strategy consultant	Small-medium enterprise	Approx. 1,5 hours
Interviewee no. 9	Strategy consultant	Small-medium enterprise	Approx. 1 hour
Interviewee no. 10	Strategy consultant	Small-medium enterprise	Approx. 1 hour
Interviewee no. 11	Strategy consultant	Large enterprise	Approx. 2 hours
Interviewee no. 12	Director	Large enterprise	Approx. 1 hour
Interviewee no. 13	Consultant	Small-medium enterprise	Approx. 1 hour
Interviewee no. 14	Former CEO	Large enterprise	Approx. 1,5 hours
Interviewee no. 15	CEO	Large enterprise	Approx. 1 hour
Interviewee no. 16	CSO	Large enterprise	Approx. 1 hour
Interviewee no. 17	CFO	Small-medium enterprise	Approx. 1 hour
Interviewee no. 18	CEO	Large enterprise	Approx. 1 hour
Interviewee no. 19	CEO	Large enterprise	Approx. 1 hour

#### 2.3.1. Participation and meaning for the employees is crucial for successful strategy implementation

The interviewees highlighted the importance of getting employees, customers and managers involved and mobilized, since they are the driving force in taking the strategy from paper to reality. Strategies have to function in a social system, and they must take the humans into account. If the employees are not on board, and do not wish to make the change happen, it will not happen. They describes the benefits

of involvement as 1) engaged employees who feel ownership of the strategy, 2) expert knowledge and inputs on the strategy and implementation and 3) qualification and validation on strategy elements. They highlighted the fact that employees are the experts of their work, so getting their inputs to the strategy formulation and implementation plan is valuable: *“The best thing to do [in order to implement a strategy successfully] is if the users – employees, managers and customers – are part of the development of the strategy. If that is not possible, then they should at least be part of challenging and qualifying it”* (Partner & Senior Consultant). Another important part of implementation is identifying how the strategy will affect the employees' working routines. They described it as translating, negotiating or ‘designing’ the cascades of the strategy, clarifying what strategy means in a series of steps from top management via middle management to the ‘shop floor’. All of this links to uncertainty no. 4: *Degree and quality of involvement, engagement and mobilization of key stakeholders in strategy implementation*.

### 2.3.2. *Strategy formulation and implementation is an iterative process, but is often not treated as such*

Interviewees highlighted the fact that a waterfall or ‘normal’ linear approach to strategy work is outdated and needs to be challenged. The problem with the linear approach is that the strategies end up not matching the reality of the organization and world: *“There are many who delivers based on the plan rather than the reality. Often people do whatever they can to deliver what was agreed-upon in January – even if the world changes in September. Learning is a key aspect of strategy execution – you can never predict what’s going to happen, so you must focus on continuously learning (Founder and CEO)”*. Interviewees pointed to setting a strategic direction or ‘vision’ rather than making a detailed implementation plan, and highlighted the need for an iterative approach to strategy implementation. They argued that it creates flexibility for adapting to changes as well as continuously evaluating and adjusting the projects invested in. Interviewees argued that it is also a way of uncovering risk earlier and having the possibility of mitigating them. However, even though strategy implementation calls for an iterative approach at the lower levels, one should not underestimate the challenge in ‘setting’ a strategy at the top level and then striving for achieving consensus in the organization. If there is too much iteration at this level it may create problems. At the interfaces between different business units, emergent problems can appear caused by for instance conflicting approaches or interpretations of the strategy. These problems may not be able to be uncovered upfront, and yet one of the interviewed said that the emergent problems and risks are where they put great effort in relation to strategy, an effort which might be a waste of time if used upfront. One always ‘get wiser’ ones you start implementing, which is why seeing strategy as a linear static process, is a key risk for implementation, cf. uncertainty 2: *Alignment and interaction between strategy design and implementation process* and uncertainty 5: *Quality of strategy implementation as an adaptive and iterative process*.

### 2.3.3. *Identifying what and how to measure the progress of strategy implementation*

Interviewees pointed to the uncertainty of setting too specific objectives of measurement upfront since there will always be a risk that one is measuring the wrong parameters. The main challenge here is identifying what to measure and how to measure it. Measuring the wrong parameters or measuring them in a wrong way, pose as a key risk for strategy implementation, because it creates a wrong idea of the progress and achievements. Designing KPI’s for strategies are often quite a challenge, especially when it comes to innovation strategies, where the challenge is to design ‘soft KPI’s’. How do you for instance measure the successful implementation of design thinking? Is it the number of post-its used throughout a project? Or the number of people involved? Or how do you design KPI’s for measuring the culture change, which we learned is a key aspect for a successful implementation? To summarize, the interviews confirmed that the risk collection presented above covers highly relevant risks from their perspective, even though several interview partners argued that it is not an exhaustive list (which it was also not intended to be).

The key strategy implementation risks outlined above - both from theory and practice - are all familiar challenges in product design and Design Thinking. Product development often incorporate continuous improvement cycles such as the plan do check act model (Liker, 2003; Ulrich and Eppinger, 2003). Strategy work is also the subject of continuous improvement as the strategy is adapted during the

execution, for instance through redefinition of resource allocation (Noble, 1999), human capital management and control systems (Hitt et al., 2017). Interviewees mentioned that strategy work is similar to product development and some of them incorporated this thinking by utilizing product development models in their strategy execution work. In the following sections, we will therefore further explore what the key capabilities of Design Thinking are, and if and how they can be applied to mitigate the key risks of strategy implementation.

### **3. Key concepts of Design Thinking**

One way to address the uncertainty in strategy implementation is through Design Thinking. Design Thinking approaches are usually applied to design of business processes (Liedtka and Ogilvie, 2011) due to their iterative nature and thus uncertainty-reducing potential.

Within strategy, Design Thinking can for instance contribute in (Stevens et al., 2008):

- Shaping, communicating and reinforcing an organization's internal culture
- Exploring uncertainties and assessing trade-offs, e.g. through prototyping
- Stimulating creativity and providing perspectives in strategy context

The following outlines Design Thinking concepts that we will use to discuss its potential in mitigating the described strategy implementation risks. Design Thinking is a multidisciplinary human-centred approach to problem solving. It promotes empathy, user-involvement and learning through rapid conceptual prototyping as a way of exploring the problem and solution space (Brown, 2009; Dorst, 2011; Liedtka and Ogilvie, 2011; Plattner et al., 2011; Kelley and Kelley, 2013; Gruber et al., 2015). Several frameworks exist in Design Thinking (Dorst, 2011). Liedtka and Ogilvie (2011) present it as process of divergence and convergence while asking the basic questions - What is, What if, What wows, and What works? They underline that Design Thinking starts with the user, aiming at creating a better future for them with empathy. Brown (2009) describes Design Thinking as a mind-set which includes: Empathy, Integrative Thinking, Optimism, Experimentalism, and Collaboration. At Stanford Design School (2009), Design Thinking is described as an interdependent and iterative process of Empathize, Define, Ideate, Prototype, and Test. We sum up these frameworks in the following design thinking key concepts.

#### **3.1. Divergence / convergence in problem space and solution space**

Despite some variance, design thinking frameworks combine a problem-space (requirements) and a solution-space (concepts). The problem-space is about understanding the context and identifying the problem by gaining an understanding of the user and key stakeholders. This forms the basis of identifying a specific problem, developing a set of requirements, and formulating guidelines for conceptualizing in the solution-space. The solution-space is about opening up and generating different ideas to solve the problem. This leads to several concepts, which are narrowed down to one final concept based on the design requirements defined in the problem-space. Each space comprises a divergent and convergent phase. Both start with a divergent phase, where knowledge, ideas and concepts are being explored. This is followed by a convergent phase, where the problem- and solution space are narrowed down to specific problems and solutions.

#### **3.2. Ability to empathize**

Design thinking underlines the importance of focusing on and understanding the user. Empathy is a central component of design thinking, where a deeper understanding of the users and their situation open up new opportunities for innovating. Design Thinking starts with the user, and the purpose is to create a better future for them (Liedtka and Ogilvie, 2011; Kelley and Kelley, 2013).

#### **3.3. User-involvement, co-creation and participation**

An in-depth understanding of the users' needs is often gained by involving them with various methods such as co-creation, workshops, semi-structured interviews etc. Making a representation of a problem



or concept is encouraged (“showing” rather than “telling”) because we learn and uncover more about uncertainties than we would by only talking (Liedtka and Ogilvie, 2011; Kelley and Kelley, 2013).

### 3.4. An iterative learning process (vs. a one-way waterfall process)

Design thinking acknowledges that the final solution will most likely not be the first one (Liedtka and Ogilvie, 2011). A majority of frameworks highlights conducting an iterative process with a mind-set of experimentation, i.e. hypothesis-driven. The solutions are also generated through an iterative process where problem- and solution space evolve both parallel and interdependent. It starts with a tentative solution and with each iteration one gets wiser and the solution better (Liedtka and Ogilvie, 2011).

### 3.5. An emphasize on experimenting, prototyping and testing

Design thinking leverages uncertainty by gaining an initial or partial understanding through e.g. low-resolution prototypes. Prototyping can be seen as a way of reducing uncertainty and risk and thus, reducing the cost of learning. This iterative process results in intermediate solutions, opening up for multiple paths to solving the problem. This entails a redefinition of the initial problem, as a continuously deeper understanding of the context is gained throughout the process (Dorst and Cross, 2001).

## 4. Discussion: Applying design thinking to mitigate strategy implementation risks

This section maps and discusses the strategy implementation risks (Section 2) against the key concepts of design thinking (Section 3). This is based on the literature review and the interviews with industry practitioners. Table 2 provides an overview of which key concepts of design thinking can mitigate strategy implementation risks.

**Table 2. Design thinking concepts that mitigate strategy implementation risks**

Risks / DT-Concepts	Alignment of implementation process and operational requirements	Alignment between strategy design and implementation	Degree of C-level responsibility in strategy implementation	Degree of Involvement, engagement and mobilization	Quality of implementation as an adaptive and iterative learning process
Divergence/convergence		x			x
Empathize	x	x	x	x	
User-involvement	x	x	x	x	
Iterativeness	x	x			x
Prototyping	x	x		x	x

### 4.1. Divergence / convergence in strategy implementation problem and solution space

In Design Thinking, there is a focus on opening up and exploring the known unknowns as well as searching for unknown unknowns through the divergent phases (uncertainty no. 5). By integrating an open and divergent phase in strategy formulation and implementation, you may gain an approximate understanding of unknowns earlier and quicker (uncertainty no. 2), as opposed to relying on fixed and purely assumptive depictions of the future. This approach may end up saving time and resources, and can enable a more flexible, explorative approach that assist knowledge creation about both problems and possible solutions, as well as support a knowledge based design of the strategy implementation. By integrating a convergent phase in strategy implementation, you may turn findings into practical elements that work in reality quicker and more efficiently (uncertainty no. 2).

### 4.2. Empathizing with users in strategy design and implementation

Applying the principle of empathizing, in-depth knowledge is gained about the “users of the strategy” as well as other key stakeholders, and the context in which the strategy is about to play out. By exploring

who the users are, how they would benefit from the strategy implementation, how it will affect their work and tasks, and how to best support them in the change, insights are gained in a systematic way. This knowledge may serve to connect strategy formulation and implementation, and will support choosing a suitable framework for the context (uncertainty no. 1 and 2). Empathizing may uncover leverage points such as who the right people are and how to best engage and mobilize them according to their needs and context. Additionally, involvement can assist in shaping the culture (uncertainty no. 4). The principle of empathizing, if done correctly, will lead to a sense of responsibility for the change you are designing and planning (uncertainty no. 3).

#### **4.3. Involving and co-creating with users in strategy design and implementation**

The users are experts on their specific area, and involving them early in the process provides for valuable insights into which situations can arise during implementation as well as what is necessary for a successful implementation (uncertainty no. 1 and 2). If this is done through co-creation – and not just interviews – it can lead to more valuable inputs. Involving the users leads to higher motivation, engagement and commitment (uncertainty no. 4), and can also form the basis of a shared language, a shared mental model and a shared conceptual framework (uncertainty no. 1 and 4). Early involvement can create a non-threatening space for asking questions, revealing doubts and giving honest feedback. This can at an early state uncover and mitigate resistance to the upcoming change (uncertainty no. 4). By involving the stakeholders through e.g. co-creation, you are already taking responsibility for the execution for the strategy you are designing (uncertainty no. 3). Involvement can be useful throughout the entire process, but for different purposes. Interviewees highlighted the importance of not involving employees or customers too early nor too late, because there needs to be a strategic direction and framework in place while leaving room for incorporating inputs. The interviews revealed many ways of involving and co-creating such as workshops, open sessions, Q&A's and Gamification. The type of involvement depends on the purpose as well as where in the lifecycle it takes place. In the beginning, it might be explorative to get a better understanding of the context. Later it might be co-creating solutions with the relevant stakeholders affected by the strategy or getting feedback and qualification on different strategy elements. Regardless of which type several highlighted the importance of trust, openness and honesty.

#### **4.4. The strategy implementation process as an iterative process**

The strategy literature already calls for adaptiveness and decentralized responsiveness to change and emergent conditions. One way to address this is to introduce the concept of iterating through Design Thinking. An iterative process, where problem-space and solution-space co-evolve could benefit strategy implementation, as it introduces continuously learning and focus on adapting the strategy to the organization's reality (uncertainty no. 5). Strategies represent a complex system and iterating may be just as important as identifying which elements to iterate and at what level. By viewing the formulation and implementation as interdependent in an interactive process, you can continuously compare strategy against reality. Additionally, it allows for continuous checking if the chosen framework is suitable or if it needs to be adapted (uncertainty no. 1.). Overall, an interactive approach provides rapid and agile cycles, where learning and feedback make the next iteration even more accurate (uncertainty no. 5). Interviewees also highlighted the need for an iterative process to strategy implementation. One of them approached this by having a product development model (Plan-do-check-act) focused on continuous improvement cycles as the basis for the strategy implementation. Others created a clear strategic intent and vision, but scoped the execution into smaller sprints making sure every sprint is value creating.

#### **4.5. Experimenting, prototyping and testing in strategy design and implementation**

Experimentation and prototyping provides reality checks by acquiring knowledge through experimentation and reducing uncertainties in multiple dimensions, and is a way of testing the designed strategy against reality (uncertainty no. 2). This can support the development of a strategy implementation plan that works, and mitigate the risk of failure. Reasons for prototyping identified by interviewees include validation or rejection of assumptions and hypothesis and uncovering uncertainties

about 1) technological feasibility, 2) strategic objectives and 3) the ability to execute. Experimenting also provides the possibility for testing and adapting your chosen framework to the specific context you are in (uncertainty no. 1). It is a possibility to prototype some of the change that the strategy will cause, which can serve as a method for preparing the employees of the upcoming change. This can mitigate a feeling of resistance, because the change will first be tested in a safe environment where questions and problems can be addressed. This can hereby increase the employee motivation and commitment, and enable a smooth transition into the new state (uncertainty no. 4). Last but not least, prototyping forms a good basis of creating an adaptive and experimental process where new learnings can occur (uncertainty no. 5). The interviews revealed several ways in how prototyping is already happening in practice such as 1) pilot tests of e.g. 100-day intensive sprint where parts of the strategy is tested in real life, 2) simulations of different scenarios for acquisition, and 3) gamifications where the employees "played out the strategy".

## 5. Discussion and conclusion

In this paper, we explored the potential capabilities of design thinking to mitigate critical strategy implementation risks. We developed a list of critical strategy implementation risks and conducted a preliminary validation of those risks with practitioners. Subsequently, we discussed the key capabilities of design thinking and mapped them to the critical strategy implementation risks. The mapping showed that fundamentally, design thinking seems to be well suited to contribute to the mitigation of those risks. Strategy implementation is traditionally approached from a mind-set of achieving a high degree of accuracy, but actually much of the uncertainties involved in the strategy implementation are not knowable up front. A major part of these include the human aspect; how will the employees actually respond to the change? Are there any hidden conflicts which can affect the process? Will the managers ask for more resources if necessary, or will they keep it for themselves resulting in not having sufficient resources to get things done? Will stakeholders openly share their concerns and doubts, or will they hide them? It can also include non-human aspects such as; how will the market evolve and change in the coming year? Do any new competitors enter the market or do any new technology disrupt our business? All of these uncertainties are not knowable upfront. Design thinking presents a different way of addressing uncertainties by leveraging and identifying ambiguity and gaining 'good enough knowledge'. The "classes of risks" faced in strategy implementation are familiar challenges that Design Thinking addresses. They include, for example, the need to reconcile linear execution processes with iterative learning processes, or the need to create a clear flow from requirements (strategy) to product (strategy implementation). We have highlighted a number of successful approaches in design thinking that we believe, based on the conceptual discussion in this paper, to be highly relevant in strategy implementation. These include approaching strategy formulation and implementation 1) as a co-evolving problem/solution space shifting between a divergent and convergent focus, 2) with a sincere wish to understand the users and create a better future for them through the principle of Empathize, 3) with a focus on involving the relevant users to gain an in-depth understanding of them, 4) with an iterative mind-set which focus on creating shorter iterations where learning and improvement are in focus, and 5) with an experimenting mind-set where assumptions and solutions are being testing through e.g. prototyping. The major implications of these findings are:

- We argue that design thinking should be applied to strategy implementation in a rigorous way.
- We expect that a number of successful design thinking approaches and "toolsets", such as co-creation, can be applied to strategy implementation, with great results.
- Analogues to the development of existing design thinking process frameworks, we believe that strategy implementation can significantly benefit from a similarly rigorous approach, where we identify functional and usability requirements for strategy implementation methods that are integrated into a flexible and customizable strategy implementation framework.
- In reverse, we believe that a thorough review of effective strategy implementation practices may yield insights and inspiration for the development of additional design thinking tools.

Based on this explorative study, the next step in our overall research project is a thorough validation of the concept with actors who deal with strategy implementation.

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